

No.

200300036

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

NDSH Research Foundation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE HERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE SEED. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, DURUM

'Dilse'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty ninth day of April, in the year two thousand three.

Attest:

Paul M. Jabane

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

W. F. Feltman

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER NDSU Research Foundation		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME D941261		3. VARIETY NAME 'Dilse'	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) C/O Executive Director PO Box 5002 1725 NDSU Research Park Dr. Fargo, ND 58105-5002		5. TELEPHONE (include area code) (701) 231-8931		FOR OFFICIAL USE ONLY PVPO NUMBER 200300036	
6. FAX (include area code) (701) 231-6661		7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) NDSU Research Foundation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION North Dakota	
9. DATE OF INCORPORATION May, 1989		10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Elias Elias Department of Plant Sciences North Dakota State University PO Box 5051 Fargo, ND 58105-5051		FILING AND EXAMINATION FEES: \$ 2705.00 DATE 11/15/2002 CERTIFICATION FEE: \$ 432.00 DATE 4/18/03	
11. TELEPHONE (Include area code) (701) 231-8159		12. FAX (Include area code) (701) 231-8474		13. E-MAIL elias.elias@ndsu.nodak.edu	
14. CROP KIND (Common Name) Durum wheat		15. GENUS AND SPECIES NAME OF CROP Triticum Turgidum L. var. durum		16. FAMILY NAME (Botanical) Gramineae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,705), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input checked="" type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input type="checkbox"/> NO (If "no", go to item 22)	
20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? IF YES, SPECIFY THE <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED NUMBER 1,2,3, etc. (If additional explanation is necessary, please use the space indicated on the reverse.)		22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)	
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.		SIGNATURE OF OWNER Dale Zetocha NAME (Please print or type) Dale Zetocha CAPACITY OR TITLE Executive Director NDSU Research Foundation DATE 11/14/02	
SIGNATURE OF OWNER		NAME (Please print or type)		CAPACITY OR TITLE	
DATE		DATE			

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 (\$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

USA named and released as a cultivar March 28, 2002

Seed first distributed to ND County Crop Improvement April 10, 2002

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

Maier durum, USA issued on January 31, 2000, Reference No. 9900265 PVP

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed.htm>

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 3.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (07-01) designed by the Plant Variety Protection Office with WordPerfect 9.0. Replaces STD-470 (04-01) which is obsolete.

EXHIBIT A - ORIGIN AND BREEDING HISTORY**'Dilse'**

Fall 1991	Original cross was made at North Dakota State University (NDSU) greenhouse. Pedigree - Maier/D88273 D88273 - D8189/D81141 D8189 - D68111/Rugby//Wrad/3/Vic D68111 - D65150/Leeds D65150 - Pi/TM//2*Tc/3/ZB/Wells D81141 - D72114/Edmore//D781 D72114 - D65150/leeds//Ward D781 - D7233/Edmore//D68112/Ward D7233 - D6515/Ward D6515 - Ld393/Yuma2//(Ld98/Ld357-Stewart464) D68112 - D65150/Leeds D65150 - Pi/TM//2*Tc/3/ZB/Wells
Spring 1992	F ₁ plants, NDSU greenhouse.
Summer 1992	F ₂ plants, NDSU research land.
Summer 1993	F ₃ head rows, NDSU research land.
Summer 1994	F ₄ head rows, Arizona winter nursery.
Summer 1994	F ₅ head rows, NDSU research land.
Summer 1995	F ₆ preliminary yield trial, two locations, NDSU research land. Experimental line designation - D941261.
Summer 1996	F ₇ Advanced yield trial, two locations, NDSU research land.
Summer 1997	F ₈ Elite yield trial, three locations, NDSU research land.
Summer 1998	F ₉ Uniform Regional Durum Nursery, 13 locations, North Dakota, South Dakota, Minnesota, Montana, and Canada.

Summer 1999	F ₁₀ Uniform Regional Durum Nursery, 13 locations, North Dakota, South Dakota, Minnesota, Montana, and Canada.
Summer 2000	F ₁₁ Uniform Regional Durum Nursery, 13 locations, North Dakota, South Dakota, Minnesota, Montana, and Canada.
Summer 2000	Seed increase by Seedstocks Project.
Summer 2001	F ₁₂ Uniform Regional Durum Nursery, 13 locations, North Dakota, South Dakota, Minnesota, Montana, and Canada.
Summer 2001	Second seed increase by Seedstocks Project
June 1, 2002	D941261 was released as a named cultivar, Dilse.

Dilse was observed for eight generations from 1994 to 2001 and was shown to be stable and uniform. Dilse has been rogued at the F₅ and subsequent generations. The frequency of rogued plants in each generation was less than 1/1000 plants. No variants were found in the variety Dilse.

The pedigree breeding method was used to develop Dilse. In early generations F₂, F₄ high heritable traits such as plant height, maturity, and disease resistance were selected. Starting at F₅ generation, selection criteria also included grain yield, test weight, kernel weight, and pasta quality traits (i.e., protein content, gluten strength, milling extraction, spaghetti color, cooking quality, etc.). Based on data from multiple locations and years Dilse was selected for its high yield, test weight and protein content, and gluten strength.

EXHIBIT B - NOVELTY STATEMENT

To my knowledge, Dilse most nearly resembles Ben durum wheat. Dilse and Ben durum wheat can be unambiguously differentiated at the molecular level by using microsatellite loci according to Röder et al (1988) Figure 1. DNA fragments analysis was carried out on 6% denaturing polyacrilamide gel using Promega (Madison, WI) DNA silver staining system. The procedure was repeated twice to confirm results.

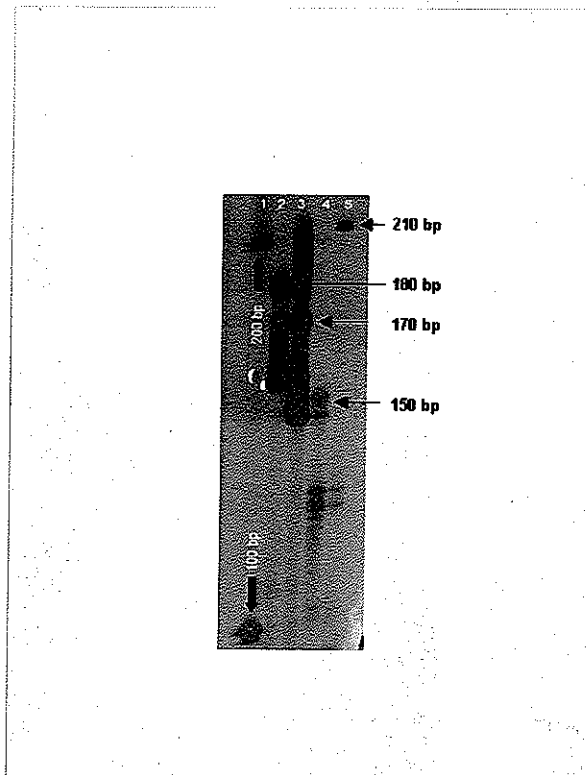


Figure 1. Microsatellite analysis to differentiate Dilse from Ben. Lane 1 has the 100 bp ladder marker. Lanes 2 and 3 are for one locus, and lanes 4 and 5 for another. Using the microsatellite locus *Xgwm193*, Dilse (lane 2) has ~ 180 bp band compared with a ~ 170 bp band present in Ben (lane 3). Using the microsatellite *Xgwm114*, Dilse (lane 4) has a ~ 150 bp band that is absent in Ben (lane 5), and Ben has a ~ 210 bp band that is absent in Dilse (lane 4).

Reference.

Röder, M.S., V. Korzum, K. Wendehake, J. Plashke, M. Tixier, P. Leroy, and M.W. Ganal. 1998. A microsatellite of wheat. *Genetics* 149:207-2023.

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-0055

Instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S) NDSU Research Foundation	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or RD No., City, State, and Zip Code) NDSU Research Foundation 1735 NDSU Research Park Drive PO Box 5002 Fargo, ND 58105-5002	PVPO NUMBER 200300036
	VARIETY NAME Dilse
	TEMPORARY OR EXPERIMENTAL DESIGNATION D941261

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used:

Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

1=Common
2=Durum
3=Club
4=Other (SPECIFY): _____

2. VERNALIZATION:

1=Spring
2=Winter
3=Other (SPECIFY): _____

3. COLEOPTILE ANTHOCYANIN:

1 = Absent 2 = Present

4. JUVENILE PLANT GROWTH:

1 = Prostrate 2 = Semi-erect 3 = Erect

5. PLANT COLOR (boot stage):

1 = Yellow-Green
2 = Green
3 = Blue-Green

6. FLAG LEAF (boot stage):

1 = Erect
2 = Recurved

 1 = Not Twisted
2 = Twisted

 1 = Wax Absent
2 = Wax Present

7. EAR EMERGENCE:

Number of Days (Average)

Number of Days Earlier Than none *

Same as Belzer *

Number of Days Later Than Pierce *

* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

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8. ANTHOR COLOR:

☐ 1 = Yellow
☐ 2 = Purple

9. PLANT HEIGHT (from soil to top of head, excluding awns):

☐ 0 ☐ 8 ☐ 9 cm (Average)

☐ 0 ☐ 1 cm Taller Than Maier *

Same as Lebsočk *

☐ 0 ☐ 5 cm Shorter Than Ben *

10. STEM:

A. ANTHOCYANIN

☐ 1 = Absent
☐ 2 = Present

B. WAXY BLOOM

☐ 1 = Absent
☐ 2 = Present

C. HAIRINESS

(last internode of rachis)

☐ 1 = Absent
☐ 2 = Present

D. INTERNODE

☐ 1 = Hollow 2 = Semi-solid 3 = Solid

☐ 4 Number of Nodes

E. PEDUNCLE

☐ 3 1 = Erect 2 = Recurved 3 = Semi-erect

☐ 2 ☐ 0 cm Length

F. AURICLE

☐ 1 Anthocyanin 1 = Absent 2 = Present

☐ 1 Hair 1 = Absent 2 = Present

11. HEAD (at Maturity):

A. DENSITY

☐ 1 = Lax
☐ 2 = Middense (Laxidense)
☐ 3 = Dense

B. SHAPE

☐ 4 1 = Tapering
☐ 2 = Strap
☐ 3 = Clavate
☐ 4 = Other (SPECIFY): oblong

C. CURVATURE

☐ 2 1 = Erect
☐ 2 = Inclined
☐ 3 = Recurved

D. AWNEDNESS

☐ 4 1 = Awnless
☐ 2 = Apically Awnletted
☐ 3 = Awnletted
☐ 4 = Awned

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12. GLUMES (at Maturity):

A. COLOR

- ☐ 1 = White
☐ 2 = Tan
☐ 3 = Other (SPECIFY): _____

B. SHOULDER

- ☐ 6 ☐ 1 = Wanting ☐ 2 = Oblique
☐ 3 = Rounded ☐ 4 = Square
☐ 5 = Elevated ☐ 6 = Apiculate
☐ 7 = Other (SPECIFY): _____

C. SHOULDER WIDTH

- ☐ 2 ☐ 1 = Narrow
☐ 2 = Medium
☐ 3 = Wide

D. BEAK

- ☐ 3 ☐ 1 = Obtuse
☐ 2 = Acute
☐ 3 = Acuminate

E. BEAK WIDTH

- ☐ 2 ☐ 1 = Narrow
☐ 2 = Medium
☐ 3 = Wide

F. GLUME LENGTH

- ☐ 3 ☐ 1 = Short (ca. 7mm)
☐ 2 = Medium (ca. 8mm)
☐ 3 = Long (ca. 9mm)

G. WIDTH

- ☐ 2 ☐ 1 = Narrow (ca. 3mm)
☐ 2 = Medium (ca. 3.5mm)
☐ 3 = Wide (ca. 4mm)

13. SEED

A. SHAPE

- ☐ 3 ☐ 1 = Ovate
☐ 2 = Oval
☐ 3 = Elliptical

B. CHEEK

- ☐ 1 ☐ 1 = Rounded
☐ 2 = Angular

C. BRUSH

- ☐ 1 ☐ 1 = Short
☐ 2 = Medium
☐ 3 = Long

- ☐ 1 ☐ 1 = Not Collared
☐ 2 = Collared

D. CREASE

- ☐ 1 ☐ 1 = Width 60% or less of Kernel
☐ 2 = Width 80% or less of Kernel
☐ 3 = Width Nearly as Wide as Kernel

- ☐ 1 ☐ 1 = Depth 20% or less of Kernel
☐ 2 = Depth 35% or less of Kernel
☐ 3 = Depth 50% or less of Kernel

E. COLOR

- ☐ 2 ☐ 1 = White
☐ 2 = Amber
☐ 3 = Red
☐ 4 = Other (SPECIFY): _____

F. TEXTURE

- ☐ 1 ☐ 1 = Hard
☐ 2 = Soft
☐ 3 = Other (SPECIFY): _____

G. PHENOL REACTION (see instructions):

- ☐ 1 ☐ 1 = Ivory ☐ 4 = Dark Brown
☐ 2 = Fawn ☐ 5 = Black
☐ 3 = Light Brown

H. SEED WEIGHT

- ☐ 3 ☐ 3 g/1000 seed (Whole number only)

I. GERM SIZE

- ☐ 2 ☐ 1 = Small
☐ 2 = Midsize
☐ 3 = Large

14. Disease : (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

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PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

<input checked="" type="checkbox"/> 2 Stem Rust (<i>Puccinia graminis</i> f. sp. <i>tritici</i>) Pgt-QCCJ, -QTHJ, -RTQQ, -TMLK, -TPMK, -HPHJ	<input checked="" type="checkbox"/> 2 Leaf Rust (<i>Puccinia recondita</i> f. sp. <i>tritici</i>) THBL, which is the most common race in North Dakota
<input type="checkbox"/> 0 Stripe Rust (<i>Puccinia striiformis</i>)	<input type="checkbox"/> 0 Loose Smut (<i>Ustilago tritici</i>)
<input checked="" type="checkbox"/> 3 Tan Spot (<i>Pyrenophora tritici-repentis</i>) Pti2 (Race1)	<input type="checkbox"/> 0 Flag Smut (<i>Urocystis agropyri</i>)
<input type="checkbox"/> 0 Halo Spot (<i>Selenophoma donacis</i>)	<input type="checkbox"/> 0 Common Bunt (<i>Tilletia tritici</i> or <i>T. laevis</i>)
<input type="checkbox"/> 0 <i>Septoria nodorum</i> (Glume Blotch)	<input type="checkbox"/> 0 Dwarf Bunt (<i>Tilletia controversa</i>)
<input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease)	<input type="checkbox"/> 0 Karnal Bunt (<i>Tilletia indica</i>)
<input type="checkbox"/> 0 <i>Septoria tritici</i> (Speckled Leaf Blotch)	<input type="checkbox"/> 0 Powdery Mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>)
<input checked="" type="checkbox"/> 3 Scab (<i>Fusarium</i> spp.) Natural infection	<input type="checkbox"/> 0 "Snow Molds"
<input type="checkbox"/> 0 "Black Point" (Kernel Smudge)	<input type="checkbox"/> 0 Common Root Rot (<i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.)
<input type="checkbox"/> 0 Barley Yellow Dwarf Virus (BYDV)	<input type="checkbox"/> 0 Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>)
<input type="checkbox"/> 0 Soilborne Mosaic Virus (SBMV)	<input type="checkbox"/> 0 Black Chaff (<i>Xanthomonas campestris</i> pv. <i>translucens</i>)
<input type="checkbox"/> 0 Wheat Yellow (Spindle Streak) Mosaic Virus	<input type="checkbox"/> 0 Bacterial Leaf Blight (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)
<input type="checkbox"/> 0 Wheat Streak Mosaic Virus (WSMV)	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> Other (SPECIFY) _____	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> Other (SPECIFY) _____	<input type="checkbox"/> Other (SPECIFY) _____
<input type="checkbox"/> Other (SPECIFY) _____	<input type="checkbox"/> Other (SPECIFY) _____

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

<input type="checkbox"/> 0 Hessian Fly (<i>Mayetiola destructor</i>)	<input type="checkbox"/> 0 Other (SPECIFY) _____
<input type="checkbox"/> 0 Stem Sawfly (<i>Cephus</i> spp.)	<input type="checkbox"/> 0 Other (SPECIFY) _____
<input type="checkbox"/> 0 Cereal Leaf Beetle (<i>Oulema melanopa</i>)	<input type="checkbox"/> 0 Other (SPECIFY) _____
<input type="checkbox"/> 0 Russian Aphid (<i>Diuraphis noxia</i>)	<input type="checkbox"/> 0 Other (SPECIFY) _____

15. INSECT: *Continued* (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

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☐ 0 Greenbug (*Schizaphis graminum*)

☐ Other (SPECIFY) _____

☐ 0 Aphids

☐ Other (SPECIFY) _____

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS

EXHIBIT D - Quality Data

Mean quality traits of D941261 and durum cultivars grown in the drill strips at the Research Extension Centers in North Dakota, 1998-2001.

Variety	STD	Test weight lb/bu	Vit kern %	1000 g	Lg %	Sm %	Fall no	Sed mm	Wheat prot %	Semo prot %	Total ext %	Semo ext %	Semo ash %	Gluten Index	Mixo	Pasta color	Cook wt g	Cook loss %	Firm g cm
Dilse		60.4	92	37.7	56	4	400	46	14.8	13.8	68.9	62.7	0.69	49	6	9.4	30.1	6.4	7.2
Ben	S	60.8	94	41.1	69	3	399	45	14.4	13.4	69.0	62.9	0.70	53	6	9.2	30.1	6.5	6.5
Lebsock	S	61.1	91	38.4	63	3	419	41	13.8	12.9	69.0	62.7	0.68	42	5	9.3	29.2	6.5	6.3
Maier	S	60.1	93	37.7	58	4	408	50	14.5	13.6	69.1	62.6	0.71	56	7	9.6	30.2	6.4	6.9
Monroe**	S	59.4	92	40.9	68	4	393	43	14.2	13.2	68.6	62.2	0.69	59	6	9.3	30.4	6.5	6.5
Mountrail**	S	60.0	91	38.0	52	5	414	42	13.8	12.9	68.2	61.9	0.68	28	5	9.1	30.7	6.4	6.0
Munich	S	59.6	93	36.3	51	5	399	38	14.1	13.2	68.7	62.3	0.69	32	5	9.7	30.5	6.5	6.3
Pierce	S	60.8	92	36.2	54	5	392	49	14.0	12.9	67.4	61.4	0.68	62	7	9.5	30.0	6.6	6.5
Plaza*	S	59.3	88	35.6	48	6	423	44	13.9	12.8	68.8	62.0	0.70	48	6	9.2	30.3	6.8	6.1
Renville**	S	60.1	92	36.9	46	6	401	41	14.1	13.1	69.3	63.1	0.67	45	6	9.4	30.2	6.4	6.5
Belzer**		58.8	92	39.7	66	3	405	55	14.1	13.2	68.1	61.5	0.68	72	7	9.1	29.9	6.6	6.6
Rugby**		60.1	93	37.3	58	5	385	24	14.3	13.3	69.2	62.9	0.70	5	3	9.2	31.2	6.6	5.3
Avg. of standards		60.1	92	37.9	57	5	405	44	14.1	13.1	68.7	62.4	0.69	47	6	9.4	30.2	6.5	6.4

Number of locations/years = 23

* Semi-dwarf

** Medium height

Data provided by Dr. Frank Manthey
Durum Wheat Quality and Pasta Processing Laboratory
Department of Cereal Science

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) NDSU Research Foundation	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER D941261	3. VARIETY NAME 'Dilse'
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) C/O Executive Director 1735 NDSU Research Park Drive PO Box 5002 Fargo, ND 58105-5002	5. TELEPHONE (include area code) (701) 231-8931	6. FAX (include area code) (701) 231-6661
7. PVPO NUMBER		200300036

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country ☒ YES ☐ NO

10. Is the applicant the original owner? ☐ YES ☒ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☒ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☒ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

See additional Exhibit E Statement of the Basis of the Applicant's ownership included in the application.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

EXHIBIT E - STATEMENT OF THE BASIS OF THE APPLICANT'S OWNERSHIP

Dr. Elias M. Elias, an employee of the North Dakota Agricultural Experiment Station and North Dakota State University, is a plant breeder who developed 'Dilse' the durum wheat cultivar for which Plant Variety Protection is hereby sought. The employee by agreement and because of the condition of the use of facilities and funds of the North Dakota Agricultural Experiment Station and North Dakota State University has assigned all ownership rights to 'Dilse' durum wheat to the North Dakota Agricultural Experiment Station and North Dakota State University.

North Dakota State University on behalf of the North Dakota Agricultural Experiment Station has assigned all ownership to the NDSU Research Foundation. The NDSU Research Foundation is a nonprofit corporation set up to own and manage the intellectual property of North Dakota State University.